

## EVALUATING THE EFFICACY OF LIGATION OF INTERSPHINCTERIC FISTULA TRACT (LIFT) IN PERIANAL FISTULA MANAGEMENT: A PROSPECTIVE STUDY

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### Abstract

**Background:** Perianal fistulas, characterized by an epithelized abnormal tract connecting rectal mucosa and perianal skin, present a common surgical challenge. The Ligation of Intersphincteric Fistula Tract (LIFT) technique, designed to preserve sphincter integrity, has shown promise. This prospective study aims to assess LIFT's effectiveness in treating perianal fistulas, considering demographics, clinical presentations, and classification. **Materials and Methods:** Conducted at SLN Medical College and Hospital, Odisha, from November 2019 to October 2020, the study included 22 patients undergoing LIFT for perianal fistulas. Patient characteristics, fistula details, postoperative outcomes, and complications were recorded. The procedure involved secure closure of the internal opening and removal of infected tissue through an intersphincteric approach. **Result:** Males (87.5%) dominated the patient cohort, with perianal fistulas more prevalent in the third and fourth decades. Perianal discharge (58%) was the most common symptom. Intersphincteric fistulas (58.3%) and single external openings were frequent. The VAS score revealed minimal postoperative pain, and 80% reported no pain by postoperative day two. Recurrence occurred in 20%, with primary fistulas showing a lower recurrence rate (23.5%). LIFT demonstrated an 89% initial healing rate, aligning with previous studies. The male predisposition, predominant posterior fistulas, and low recurrence rates support LIFT's efficacy. Postoperative pain was minimal, emphasizing its advantages in pain management. **Conclusion:** LIFT emerges as a safe and effective technique, particularly for recurrent and complex perianal fistulas, offering high healing rates and sphincter preservation. Despite limitations, the study supports LIFT as a valuable addition to perianal fistula management.

## INTRODUCTION

The anal canal originates at the point where the rectum passes through the pelvic diaphragm at the anorectal ring and extends to the anal verge, measuring approximately 4cm in length. The muscular junction between the rectum and anal canal is palpable as a thickened ridge, known as the anorectal 'bundle' or 'ring'.<sup>[1-3]</sup>

The external anal sphincter constitutes the majority of the anal sphincter complex and is composed of striated voluntary muscle supplied by the pudendal nerve. On the other hand, the internal anal sphincter

is the distal continuation (2–5 mm thick) of the rectum's circular muscle coat, composed of circular, non-striated involuntary muscle supplied by autonomic nerves.<sup>[4-6]</sup>

A perianal fistula is defined as an epithelized abnormal tract connecting two surfaces, usually involving the rectal mucosa and perianal skin. It is a benign and treatable lesion affecting the rectum and anal canal, with crypto-glandular infection accounting for around ninety percent of cases. The majority of infections are acute, while a minority result from chronic low-grade infection. The primary cause is often attributed to the rupture of an acute or

inadequately treated anorectal abscess into the perianal skin, originating from an anal gland within the submucosa of the anal canal. Additionally, perianal fistulas can be associated with conditions such as tuberculosis, Crohn's disease, and malignancies.<sup>[7-11]</sup>

Various classifications exist for fistulas in ano, with Park's classification being one of the most widely used, categorizing them into four types: Intersphincteric, Transsphincteric, Suprasphincteric, and Extrasphincteric. The American Gastroenterology Association also categorizes fistulas as simple or complex based on their origin below or above the dentate line, respectively.<sup>[12]</sup>

The St James's University Hospital classification, based on MR imaging, further refines the assessment, providing a detailed view of primary fistulous tracks, secondary ramifications, and associated abscesses in both axial and coronal planes.<sup>[13]</sup>

Anal fistulas present challenges in surgical treatment, necessitating accurate preoperative assessment of anatomy. Clinical examination focuses on determining the location of the internal and external openings, primary and secondary tracks, and the presence or absence of underlying disease. Imaging modalities such as fistulography and CT provide limited information compared to the superior accuracy of MRI, which is considered the gold standard for complex cases and recurrent fistulas.<sup>[11-14]</sup>

Surgical management options vary in risk and include fistulotomy, fistulectomy, setons (loose and tight), fibrin glue, fibrin plug, and advancement flaps. Recent modalities, such as Ligation of Intersphincteric Fistula Tract (LIFT), Video Assisted Anal Fistula Treatment (VAAFT), Stem Cell Therapy, Fistula Laser Closure (FiLaC), and Fistula Clips, offer minimally invasive alternatives with varying success rates.<sup>[12-15]</sup>

LIFT, a sphincter-saving procedure developed by Thai colorectal surgeon Arun Rojanasakul, involves secure closure of the internal opening and removal of infected crypto-glandular tissue through an intersphincteric approach. The success rate reported is 94% in the treatment of fistula in ano without causing incontinence.<sup>[16]</sup>

In this context, the observational study aimed to assess the efficiency of the LIFT technique for perianal fistulas operated at SLN Medical College, Koraput, Odisha.

## MATERIALS AND METHODS

A prospective study was carried out from November 2019 to October 2020 in the Department of General Surgery at SLN Medical College and Hospital, Koraput, Odisha. The study included 20 patients of any gender who were admitted electively from the outpatient department and underwent Ligation of Intersphincteric Fistula Tract (LIFT) for perianal fistulas. Each patient had a pre-formed proforma

documenting demographics, a detailed clinical history, per rectal examination, and supportive imaging studies. Information recorded encompassed the site of the fistula, the number of external and internal openings, the position and length of the fistula, and the presence of recurrent fistula. Additional details such as the duration of hospital stay, type and duration of analgesia, Visual Analogue Scale (VAS) scores, postoperative complications, and the healing time of the fistula were also documented for each LIFT procedure.

Exclusion criteria comprised patients with fistulas resulting from causes such as Crohn's disease, tuberculosis, and malignancy. The patients were followed for a three-month period. Admission for surgery occurred one or two days before the procedure, during which patients were informed about the technique and provided proper consent. The LIFT procedure was performed under regional anesthesia in the lithotomy position.

### The LIFT procedure involved the following steps:

- Identification of most fistula tracts through rectal examination or injection of saline and hydrogen peroxide through the external opening.
- Entry into the intersphincteric plane via a curvilinear incision corresponding to the internal opening at the intersphincteric groove.
- Dissection around the tract using a narrow and small-angle clamp.
- Confirmation of the tract by injecting saline and hydrogen peroxide or passing a probe through the external opening.
- Secure suture ligation or transfixing of the intersphincteric fistula tract at both sides, using 2-0 absorbable suture near the internal opening and another suture at the external sphincter defect.
- Excision of the fistula tract between the ligations.
- Verification of proper closure by injecting saline, inserting a probe at both openings, and thorough curettage of the fistula tract from the external opening.
- Closure of the intersphincteric wound with absorbable 3-0 simple interrupted single layer, and the excised fistula tract was sent for histopathological examination.

All patients received intravenous broad-spectrum antibiotics and analgesics for one or two days, with VAS scores recorded for postoperative days. Discharge occurred after one or two days with recommendations for laxatives and sitz baths 2-3 times daily for 5-7 days.

Post-discharge, patients were seen at one week, three weeks, and then at three-week intervals until complete wound healing within the three-month follow-up. During each visit, patients were assessed for clinical continence status, examination of the intersphincteric incision wound, palpation of the previous internal and external openings, and evaluation of sphincteric tone. The time taken for patients to return to work after surgery was noted. Any documented healed fistulas were monitored for

possible recurrence. Anal function was assessed both pre and postoperatively during the three-month follow-up, defining successful clinical healing as complete wound closure, closure of all external openings, and the absence of symptoms at any point during follow-up.

## RESULTS

A total of 22 patients diagnosed with perianal fistulas and treated with ligation of intersphincteric fistula tract (LIFT) were examined. The patient cohort comprised 21 males (87.5 %) and 03 females (12.5 %). The prevalence of perianal fistulas was notably higher in males compared to females. Patient ages ranged from 20 to 61 years. The duration between the onset of symptoms related to perianal fistulas and diagnosis varied from 02 to 24 months, with a mean of 10 months.

The highest frequency of perianal fistulas was observed in the third and fourth decades of life. Among the reported symptoms, perianal discharge was the most common, followed by perianal pruritus or irritation. Patients with a history of perianal abscess or swelling presented with the fewest cases.

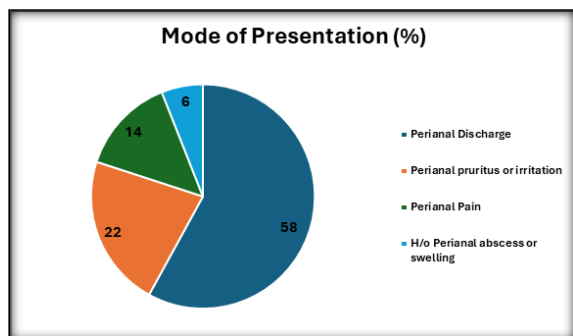


Figure 1: Type of fistula (In percentage)

The maximum use of analgesics and antibiotics occurred within the first two postoperative days, with 80% of patients reporting no pain on the Visual Analogue Scale (VAS) at postoperative day two. Intersphincteric fistulas were the most common type in this study, aligning with Park's classification.

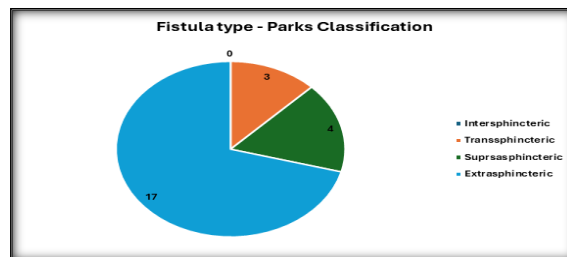


Figure 2: Type of fistula (Parks Classification)

Single external openings in perianal fistulas were the most common findings in this study, with a prevalence of posterior external openings being higher than anterior ones. Regarding the classification of fistulas, 58.3 % of patients had lower-level fistulas, while 41.6 % had higher-level fistulas (internal opening situated above the anorectal ring). Primary fistulas outnumbered recurrent fistulas, but recurrent cases exhibited a higher likelihood of re-recurrence.

Follow-up in this study extended over 3 months, revealing that 16 fistulas healed within 4 weeks, while two took around 6 weeks for complete healing. Overall, 17 cases (89%) achieved complete healing, with recurrence observed in 04 cases (23.5 %), and 03 patients experienced postoperative infections (10%). Recurrence rates were higher in recurrent fistulas, presenting a significant challenge in their management.

Table 1: Characteristics of study participants

Variables		No. of cases	Percentage
Gender	Male	21	87.5
	Female	3	12.5
Age (years)	15 – 25	4	16.6
	26 – 35	10	41.6
	36 – 45	5	20.8
	46 – 55	3	12.5
	>56	2	8.3
Number of external openings	1	18	75
	2	3	12.5
	>2	3	12.5
Situation	Anterior	5	20.8
	Posterior	19	79.1
Level	Low	14	58.3
	High	10	41.6
Type	Primary	6	25
	Recurrent	22	75
Number of Days	1	6	25
	2	12	50
	>2	6	25

Table 2: VAS Score

VAS Score	Post Op Day 0		Post Op Day 1		Post Op Day 2	
	No. of Patients	Percentage	No. of Patients	Percentage	No. of Patients	Percentage

0 (No pain)	0	0	2	8.3	19	79.2
1 (Mild pain)	0	0	10	41.7	4	16.7
2 (Mild, annoying)	4	16.7	11	45.8	1	4.2
3 (Moderate, annoying)	16	66.7	1	4.2	0	0
4 (Nagging, uncomfortable)	5	20.8	0	0	0	0

**Table 3: Healing time and complications among study participants**

No. of days	No. of cases	Percentage
1	6	25
2	12	50
>2	6	25
Healing time	No. of patients	Percentage
Within 4 weeks	21	87.5
Upto 6 weeks	3	12.5
Complications	No. of patients	Percentage
Bleeding	0	0
Infection	3	12.5
Anal incontinence	0	0
Recurrence	5	20.8
Death	0	0

**Table 4: Type of Fistula and recurrence**

Type of fistula	Total no. of cases	Recurrence	Percentage
Primary	17	4	23.5
Recurrent	7	3	42.9

## DISCUSSION

Perianal fistula represents a prevalent benign anal condition encountered frequently in surgical practice. Fistula-in-ano is characterized by an epithelized abnormal tract connecting the rectal mucosa and perianal skin, often originating from an infected anal gland within the submucosa of the anal canal. Surgical management of perianal fistulas aims at eradicating sepsis while preserving continence. Recently, sphincter-preserving surgical techniques have emerged, focusing on treating complex anal fistulas to maintain sphincter integrity and optimize functional outcomes. Ligation of intersphincteric fistula tract (LIFT) is one such technique, initially reported by Rojanasakul et al with an initial healing rate of 94.4%. Subsequent studies, however, have reported varying success rates ranging from 39.8% to 92%, with recurrence rates of 18% to 28%.<sup>[17-21]</sup>

In the present study, the initial healing rate was 89%, and the recurrence rate was 20%, consistent with earlier research. The criteria for surgical success or failure are typically based on the incidence of recurrence or incontinence. The most common age group for presentation in this study was the third and fourth decades of life, aligning with findings from Khalid et al. Additionally, the study showed a higher incidence of perianal fistulas in males (90%) compared to females (10%), a trend supported by similar studies, suggesting a higher predisposition in males due to increased intra muscular glands.<sup>[22-26]</sup>

Perianal discharge was the most common symptom (60%), followed by perianal irritation (20%), with pain and swelling presenting in some patients. Posterior fistulas were predominant (80%) in the current study, supporting the preference for LIFT as a treatment option to prevent recurrence and preserve continence.<sup>[27-29]</sup>

The median healing time for LIFT in the study was 4 weeks, consistent with previous research. Notably, the postoperative pain was minimal, and the Visual Analogue Scale (VAS) score was zero for 80% of the patients at postoperative day 2, aligning with findings from other studies suggesting less postoperative pain with LIFT compared to alternative procedures.<sup>[30-34]</sup>

LIFT proved effective as a sphincter-conserving approach in the treatment of perianal fistulas, with a high success rate and continence preservation. The study reported no cases of anal incontinence, and most subsequent studies have shown no postoperative impairment of continence. The safety of LIFT was underscored in this study, with only two cases (10%) of postoperative wound infection successfully treated and no new onset or worsening incontinence.<sup>[35-37]</sup>

The study emphasizes that LIFT is a safe and effective technique, offering advantages such as low or zero risk of impaired sphincter function, minimal pain, and suitability for complex and recurrent fistulas. However, limitations, including the relatively short 3-month follow-up, were acknowledged. Longer follow-up periods are essential for a more comprehensive understanding of recurrence rates in complex anal fistulas.

## CONCLUSION

The findings of this study affirm that the Ligation of Intersphincteric Fistula Tract (LIFT) is a simple and safe procedure with a high healing rate, no risk of incontinence, and lower early postoperative pain scores. LIFT emerges as a favorable option, particularly for recurrent and complex fistulas, showcasing its safety and efficacy. Despite the study's limitations, the results support LIFT as a



valuable technique in the surgical management of perianal fistulas.

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